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POSITIONING DISCOURSES ABOUT GENDER IN THE IT SECTORS IN SWEDEN AND IRELAND[1]

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POSITIONING DISCOURSES ABOUT GENDER IN THE IT SECTORS IN SWEDEN AND IRELAND[1]

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Introduction

Investigating what might cause, exacerbate or redress gender imbalance in the IT sector is, like most social phenomena, complex. What might seem fairly straightforward from the point of view of a given perspective or model becomes ensnarled, contradicted, and of varying relevance from situation to situation not only when other perspectives are added to the analysis, but especially when the matter becomes subject to empirical investigation.

A further complicating factor is that what we are looking at is not an isolated phenomenon, neither at the individual, organizational nor sectoral/industry level. At any given point in time a circumstance is impacted by a variety of different factors brought to bear by a number of individual and collective agents. Also complicating the picture is the fact that various factors, forces and conceptions rise and decline in significance as well as mutating through process of being challenged, contested, refuted or reformulated. Even things that are "ever-present," such as sex and gender, come to the fore and recede in prominence in different situations. In this sense both the way gender appears and the importance it has is fluid (Alvesson and Due Billing 1997; Gill and Grint 1995:17; Mills 2002:288; Ridgeway and Smith-Lovin 1999:191). Another problem is that we often seem to be dealing with two or more different realities. The phenomena that we as academics see and the explanations we give don't always match what and the way the people we study see their world. This is a problem for us if we are interested in policy and change (on working within existing frames and institutionalising gender equality, see Inhetveen 1999). We need to bridge this gap by both reappraising and explaining our explanations better as well as reappraising and looking at the social forces behind the explanations and pictures of the world that we get from our informants embedded in particular contexts (Reskin 2000a).

The primary purpose of the paper is to explore theoretical positions and visibly bring into the analysis of 'women in the IT sector' the multiplicity of factors that impact women's employment in this sector. These factors can be divided up into actors and fields; specific locations of interaction from the abstract macro-labour market level to the more concrete organisational and individual family level; and processes based on cultural and ideological beliefs and categorisations that crosscut and infuse actors, fields and locations. Likewise, actors must be seen as dynamic and responsive agents with pasts, presents and futures, and shifting evaluations of these. This perspective aims to take the comprehensive life contexts that impact work and employment issues and considerations of the men and women active in the sector into consideration. What is aspired to is not just an abstract agent's perspective, but rather a look at the multiplicity of agent's perspectives on what impacts their thoughts about working in the IT sectors in Ireland and Sweden. Are there common processes for a significant portion of women that are different from men, and what is the spread of variation with the categories of men and women? In other words, what general processes can we see that have a gendered pattern.

[1] Funding for this project is provided by the VINNOVA research foundation in Sweden. The other principal researcher is Karen Davies, Department of Sociology, Lund University. This is very much a draft paper please do not cite!

The facile and pragmatic point of departure for this part of the study is the notion that studying gender is essentially about seeing how and why ascriptions of male and female, masculine and feminine to physical entities, ideas and behaviours lead to divergent outcomes for women on the whole, and men on the whole. This requires looking both at differences between men and women as groups, and within men and women as groups.

The fact that this paper is a distillation of the larger framework for a research report for which the analysis of the empirical data is still at a cursory stage contributes to its disjointed nature. In the paper I briefly describe the project, then move on to look at the primary groups of actors involved, then shift to a look at literature areas or fields central to our study and some of our relevant (provisional) findings related to these topics, and round off with a very short discussion of how some of this might fit together.

The usual caveats about breadth over depth associated with such cursory wide-ranging reviews also apply here. This is not meant to be an exhaustive literature review of these areas.

The project

The basic objective of the project is to see what factors appear to promote contra work against gender inequality in the IT sector. The project looks at Ireland and Sweden. The heart of the project is interviews with men and women at seven IT companies in Sweden, and five companies in seven locations (two of the companies had locations away from their home offices which were included in the study) in Ireland. Approximately 60 hour-long interviews were carried out with male and female employees and managers in Sweden, and approximately 40 interviews were carried out in Ireland. A cohort study of women who have attained a certain number of academic units in computer science respective computer engineering at one university and one technical university in Sweden was also conducted, tracking their educational and employment history since attaining the given number of academic units. This survey was carried out by brief (10-15 minute) telephone interviews. Approximately 50 such interviews have been conducted.

Situating the project: the primary actors

One way of looking at the project is by observing the various actors who are to a greater extent directly involved in the matter under investigation. As with most social actors, they can also be seen as operating within basic institutional fields or sectors (Bourdieu 1984; 1990; DiMaggio and Powell 1983; Dobbin 1994). A brief inventory of these fields and their primary constituent actors looks like this:

- The state/regulatory sector – especially the ministries and departments that have to do employment, industry/economic planning, gender equality, family and social policy.
- The commercial/business sector – companies and employees, and their collective organisations – trade unions and employers organisations.
- The academic sector – university academics as well as research funding agencies
- The civil society/interest group sector – here I would locate the broader mainstream gender-equality debate and commentators, both with regard to employment and working life issues as well as domestic gender relations and work-(family)life balance discussions that take place in public forums such as the popular media.

Obviously, actors transcend these sectors or fields, especially when engaging in debates before the general populace, as well as in discrete contacts with actors in other spheres, such as when academics or trade union representatives speak to politicians and civil servants or when business leaders write op/ed articles in newspapers. However, as new institutional theory points out, ways of seeing, analysing and debating issues vary from institutional field to institutional field (Friedland and Alford 1991), and much of what we will see discussed from the various actors present in the accounts below

can be traced back to the respective actors' institutional bases. In other words, the positions of actors in institutional fields are held to have a bearing on what detailed and generalised information various actors obtain or are exposed to, as well as the general and specific understandings and interpretations that are current or available to them. This in turn affects the actors' cognitive and normative dispositions.

Situating the project: the academic fields and their literatures

This section looks at both literature fields and analytical perspectives that are deemed relevant to the project's focus. As perspectives and fields are interwoven the section on fields will take up both the concrete event/sequences that characterize these fields, as well as the theoretical and analytical perspectives that predominate or are found within these fields. The findings presented within these fields become explanatory factors in themselves in the wider composite picture. Subsequently I will look at a number of two related theoretical perspectives on the cognitive bases of discrimination.

The fields – focusing on particular institutional or organizational settings[2]

Gender and Career

Before looking at career patterns and factors impacting employment careers, I'd first briefly like to look at two issues regarding the link between education and career choice. The first point has to do with the diminishing importance of one's educational and training credentials over time, but a lasting importance of the social ties established during this period. The second issue has to do with the issue of differences between men and women with regard to confidence in technical ability and the extent to which this is redressed during the educational process.

There is of course an initial inherent link between education choice and career choice and the experiences and outcomes of the education process on entry into employment and career opportunities. Much of the inequality in the labour market between men and women as measured in terms of wage inequality, susceptibility to unemployment and underemployment, job status, etc can be accounted for in terms of labour market segregation and career tracking that begins with educational choices. Findings from a French study of the transition from education/training to employment focusing on women and men who chose "non-traditional curricula"[3] show that males have advantages over their female counterparts in all three categories upon entering into employment (Couppié and Épiphane 2001). However, on the positive side, gender advantages diminish as training levels increase (Couppié and Épiphane 2001:4). While careers usually begin with education or training programmes, what we are interested in is not how men and women get into different educational streams, but the lasting impact of educational choices and experiences once in employment. We have found a number of social factors emerging from educational/training periods to be of continued importance over time, though the significance of what, where and how long one studied (and whether on attained a degree, at least in Sweden) diminishes over time.

One factor more significant in Sweden than in Ireland is the difference in studying computing at a technical university and an academic university. Within our company and cohort samples we naturally

[2] This is complicated by the facts that such settings also are nested in national, regional and class-based contexts. An example of this would be the situation affecting the educational and career choice opportunities of Irish women who attend gender segregated schools in which "higher maths" and certain natural/physical science subjects were not readily available to them. Such courses are required prerequesites for pursuing certain sceience and engineering programs at the tertiary level.

[3] That is to say women who chose educational programs where over two-thirds of the participants are men and vice versa. "Mixed streams" is the term used for programs that fall between the male respective female dominated programs.

had women who attended both academic universities and pursued computer science degrees, as well as women who attended technical universities and did degrees in computer engineering. Both statistically and in our sample (for Sweden) however, the ratio of women who pursued university training as opposed to technical university training was approximately 4 to 1. The most frequent responses to the question as to why regular universities were chosen over technical universities were that it did not occur to most of our female respondents to seek admission to a technical university, or that admission into the IT sector was open through both avenues, and the regular university was more familiar and less daunting. There is a difference in prestige between these two educational avenues in Sweden, but the enduring effects of the actual degree decline in significance as one gains more experience in the branch. Reflecting the experience of most men and women we interviewed, one female consultant in Sweden remarked, "No one ever asks me where I studied". What does not however alter are the social networks among students and to companies that arise during this period. The importance of these early networks in career changes and drawing support from colleagues was frequently reported to continue over time and there was also a tendency for these early networks to become more homphilious over time, in keeping with the findings of McPherson, Smith-Lovin and Cook (2001). So where and what one studies proves to be more important in establishing networks than garnering credentials.

Studies on the role and impact of biased self-assessments (Correll 2001; Henwood 2000; Roger and Duffield 2000), and early social encounters (primarily in schools, but also early work-life experiences) show the enduring significance of widespread cultural stereotypes in forming gendered conceptions of technical competence. Correll (2001) finds that male high-school students in her US sample assess their maths competence higher than it actually is, while they do not do assess their verbal skills higher than females. In other words, males over-assess their math skills but not all their skills. They are not "generally" overconfident, but rather specifically overconfident with regard to math skills. Correll concludes that "widely shared cultural beliefs about gender and task competence bias the perceptions individuals have of their own task ability" (20001:1724). As the decisive factor is "widely held cultural beliefs," these beliefs not only affect one's self-assessment and identity and hence one's disposition to choose one career field or another, they also impact assessments of the opposite sex's competence. One may concur that this may be true at the secondary educational, but probably doesn't hold at the tertiary level and beyond. Henwood (2000) finds that it does. In a study of students on two different types of computing courses, one in more or less purely technically based computer science programme, and the other in an interdisciplinary computer course emphasizing the social and business as well as technical environments of computing, Henwood still finds a difference between perceived technical competence. In both groups, women tended to underestimate their competence ('actual' competence was measured in terms of grades during the course), and males over-estimate their competence. It was not just self-assessments that were skewed, but also ranking the skills of course-mates were biased in the same direction, "A further interesting gender difference in this group was the fact that the observed male 'expert' of the group was recognized as such by five students (of nine) whereas the observed female expert went unrecognised by the students" Henwood (2000:219). All this in spite of the fact that women fared better on both courses than men, bringing Henwood to the conclusion that 'anomalies' and objective evidence at the local level does not supplant ingrained widespread cultural perceptions:

> Women in this research were not being denied access to technical skills in any formal sense. […] However, what this analysis does suggest is that, despite having reason to be as confident about technical skills and competence as the equivalent group of men, the majority of women in our research groups continue to underestimate their skills and continue to equate technical competence and skill with masculinity and men. (Henwood 2000:222)

One of the more significant things that we have found is that early exposure to work environments where IT and computing was a significant part of the work process is decisive for a large proportion of women who become IT specialists. In other words, a far higher percentage of women enter the sector from the "front-end" rather than the "back-end" of the computer - that is to say through the screen (as users) rather than the circuit-board. Women to a much higher degree begin their careers in other

sectors where they use the technology and gain a familiarity and confidence and command of it in their everyday work, and then later move into programming (usually through formal training). This is also one of the things that employers have mentioned that makes women in general more attractive than men, as women more frequently have both a user's and producer's perspective. With regard to work histories, we have found this to be the case. More women do transition into technology creation careers from technology use careers.

The issue of confidence and over-confidence[4] in technical ability and saving face reappears in interviews about differences in work styles between men and women, as well as in managerial explanations of assertive wage and promotional demands and willingness to ask for help in problem solving. One of the few difference between men and women that we recurrently heard about in our interviews in Ireland and Sweden, and from all levels in the companies was the tendency for women to frequently ask their colleagues for assistance in solving problems that they were stuck on and flagging for problems and possible delays in their work. Across the board this was seen as a positive and beneficial trait, increasing efficiency and transparency in the project. Management rhetorically promoted this type of behaviour. Whether this behaviour stems from a lack of confidence or the acquisition somewhere along the line of a collective work style on the part of female employees or an over-confidence or acquisition of an individualistic work style on the part of male employees is difficult to ascertain. Many of the women who we spoke to, and some of the managers we raised this issue with believed that what is rhetorically lauded could well work against the women who practiced this more collective problem-solving and group work style, as it gave or reinforced the conception of men as technologically capable and independent workers, and women as less capable and often in need of help from their (most often) male colleagues. Following Argyris (1993) we see a difference between the espoused value of efficient collective problem-solving and the continuation of the masculine value in practice of independent accomplishment. Again, the cumulative implications of this sort of difference are difficult to gauge, but it surely plays in both at the level of individual evaluations and perpetuation of the wider cultural stereotypes (and thereby also sex-based differences in technological confidence) of technical competence.

The issue of technical competence and technical interest probably plays a role in another central career development matter in IT companies, that of "staying purely technical" or going more towards "people management." Even in the relatively flat organisations we looked at there are essentially two tracks open to technical employees. While a few technical employees move into areas such as sales and HRM functions, the primary tracks comprise of becoming a technical specialist or generalist on the one hand, and taking on more administrative and personnel management functions on the other. What we find is that women are shunted to a far greater degree from hard technical careers into technical and managerial careers. This goes against the "practitioner" career pattern outlined by Crompton (2002), but possibly only slightly if one looks below the surface as being a practitioner in this sector has different demands and status than in industrial companies. Why are women disproportionately shunted into management careers? Possible explanations that we have come up so far include:

1. Competition with other men – the technical jobs are the ones some men avidly pursue.
2. Women are encouraged to use their assumed people skills, which come best to use in management functions.
3. Personal preference for a more balanced job, more human interaction and responsibility
4. Women are quota'ed into these jobs by senior management to live up to gender equality ideals or mandates.
5. This is where the senior women are – this is the route to be taken (the importance of role models).
6. This type of work is (perceived to be) compatible with "external commitments," i.e. requires less travel, less work at project completion time than the pure technical staff

[4] By now it should be more than clear that confidence is not seen as an individual, psychological issue but socially produced phenomena carried both individually and collectively.

While gender is ever present, it is probably latent in some situations, a semi-important aspect of others and decisive in others. When, how and to what extent it matters is difficult enough to discern analytically, and even more so to get people not sensitised to looking for gender's multiple and varying impacts to recognise the variability of gender and sex and the differences it can make on the careers. The most striking example of how and when "femaleness" attains heightened importance when constraints emerging from commitments and responsibilities outside of work, usually from the family/domestic sphere, and begin to impinge upon time and energy commitments towards work came in an "off-the-record" story recounted by a senior technical supervisor (more or less a CTO) at a Swedish consultancy firm (the firm has since gone bankrupt so telling the story is ethically easier now). During the boom years of the late 1990s a group of five middle level programmers and project leaders began planning branching off and starting their own company. The group comprised four men and one woman, the woman at the time was a senior project leader and she was seen as a central member of the company to be. During the process of planning the new company the woman became pregnant. As the company began to take form, two of the men began to question whether the woman would be capable of pulling her weight in the decisive initial phase of the establishment of the company. Increasingly she was marginalized from the group and the four men started the company themselves, with the woman remaining with the company that the new company hived off from. Interestingly, when the company established itself, the four men remained in technical roles and a female CEO was brought in to run the company.

Finally I'd like to conclude this section by concurring with the increasing trend to not treat careers and employment in isolation from the other fields and institutions that impinge on employment. Increasingly there is a recognition that it is not just factors within the employment relationship that impact career trajectories, but also welfare state and market provisions, domestic relations, and general economic and labour market factors. How all these factors can be integrated into explanatory models remains the major challenge. One also has to take actors and agency seriously, paying attention to personal and psychological factors, and especially the dynamic nature of the life-course. The way I'd like to take up this notion of a dynamic actor is in the more incremental and processual account of life course which is less disjunctured and radical terms than many postmodern accounts of agency. Life course could briefly be summed up as a trajectory subject to revision. With such an account of agency one retains both the notion that the agent is an acting subject, but one who makes decisions and investments which exert a degree of structuring influence on further action. One also avoids the pitfalls of the Hakims preference theory (see below). We make choices, but these choices are both socially and culturally informed and constrained, but rarely are these choices based on a set of internally consistent or temporarily stable preferences. The life course concept allows for both a dynamic environment, and a perceptive, learning and adaptive agent. So what I want to do is present a pattern in career development that we have found, as well as the way our interviewees foresee their future, but not present that pattern as a static entity, but rather as context that informs one's perceptions of immediate and long term options, that may be revised as one learns more about one's life at and outside of work. This sort of analysis is possible for our in-depth interview material in the company studies, but not our cohort study comprising shorter telephone interviews.

The Gendered Organization and Labour Markets

As the *gendered organisation* literature and the *gendered labour market* literature overlap to a great extent, especially around the notion of 'internal labour markets,' I'll begin this section with a brief theoretical review of five different 'causes' of segregation and inequality that are common to the gendered organisation and labour market literatures as each explanation seeks to address the question of why men tend to end up in some jobs and women in others. Subsequently I will look in more depth at the concrete social setting of the organisation as an arena of gender. A more detailed study of how gender understandings and behaviours are produced and reproduced in the companies we study (based on the 'doing gender approach')is being undertaken by the other principal researcher on the project, so this central area is also omitted from detailed analysis here.

The most common contemporary explanations of occupational gender segregation can usually be grouped into five basic groups:

1. patriarchy
2. social reproduction
3. cognitive based discrimination
4. preference theory
5. rational choice/human capital

The latter two forms of explanation emphasize volition and choice on the part of women, patriarchy posits a degree of volition on the part of men, while the social reproduction explanation relies on a minimal degree of volition on part of social actors and the cognitive based discrimination theories are based on culturally informed but non-intentional/non-volitional discriminatory action. I will discuss two proponents of cognitive based discrimination theories in a later section, so here I will only take up the other four. In brief, patriarchy rests on the idea that men (in general) enjoy power and privilege over women (in general). At the descriptive level patriarchy is rarely disputed. However, as an explanation of segregation and subordination the theory of patriarchy usually includes an assumption of men's interests and a degree of volitional action to perpetuate the continued privilege and power enjoyed by men. It is on this point that patriarchy as a theory has been subject to recent criticism, partly rooted in the essentialist assumptions behind men's interests, partly in the idea of collusive male agency.[5] The social reproduction argument, as noted above, use a more macro-social form of explanation and hence less reliance on individual or group volition. The gist of the argument, at least according to Blackburn et al (2002), is that society is continuously under a process of transformation due to structural and ideological changes in a myriad of areas of social life, and that social actors like employers and employees are both subject to the constraints of contemporary ideology and labour force composition. Thus, the social reproduction argument boils down to ideologically informed agents acting in a dynamic, but structured social environment, which their actions *qua* structuration theory (Giddens 1984) recursively impact. Gendered outcomes are seen to a large extent to be the "unintended consequences" of actions not directly related to gender considerations (Blackburn et al 2002:526-530). Rational choice and human capital theories of segregation are frequently lumped together based on the fact that both build upon calculations of maximal return for invested time and energy. As explanations of segregation, two variants of these arguments generally emerge. The first being that following other women into traditionally female educational programmes and occupations reduces the costs of information gathering and potential failure by trial and error endeavours of venturing into uncharted territory. The second line of argumentation is that initial choices and human capital investments (usually early in the education process) get men and women into different "streams" and the costs of changing streams at a later point become quite high. One also often hears rational choice based arguments used to explain why, when confronted with the 'need' for one partner in a family to give up or dampen their career ambitions when domestic caring tasks arise, men usually staying in full-time employment (due to higher investments in their human capital and higher returns – wages and benefits) and women leaving full-time employment (due to lower investments and returns, so the theory goes). Finally, preference theory (as articulated by Hakim 1998; 2000) posits that women actively make choices based on preferences for various 'lifestyles' rather than making rational calculations about returns on (human capital) investments. According to Hakim, women fall into three basic categories, those who are work or career centred, those who are home or family centred and those who adapt or drift between these two poles depending upon circumstances and opportunities. Women who are career oriented compete as equals with men in any chosen field and the primary impediment to advancement that these women encounter is discrimination. As an explanation of segregation, preference theory basically asserts that women who are home centred or adaptive opt for careers or occupations that are less demanding and thus move into more traditional female occupations

[5] As Grint and Woolgar point out, it is helpful to distinguish between patriarchy as a description of society, patriarchy as an explanatory theory, and a pragmatic relationship to policy suggestions arising from a diagnosis of society: "However, in the debate about patriarchy, the crucial point is not that we reject the policy implications of these diverse accounts, but that we remain sceptical of the theoretical premises from which policies may flow" (Grint and Woolgar 1995:62).

or ‘female’ career trajectories (such as ‘non-linear’ slow advancing careers comprising of interrupted work histories or part-time work) if one works in traditionally male occupations. The career or work oriented women become the ‘anomalies’ that we find rising higher in both mixed-sex and traditionally male occupations and branches.

To a great extent, contemporary debates boil down to a debate about how much choice, agency or volition is involved in the choices that women make that lead them to the positions they find themselves in. How constrained and what informs the choices made by women? This has been the major point of contention in the exchange between Hakim (1998; 2000) and Crompton (2002; Crompton and Harris 1998). Julia Evetts (2000) divides up the field of explanation in a different way, using the concepts of structure, culture and agency and comes up with essentially the same basic point of contention – how much and whose choices are involved. One major point against the more radical ‘choice’ oriented theories is that they focus primarily on the choosing that female employment seekers can do, and not for example the choices that the opposite partner in the choosing relationship, such as employers and managers, can make. In other words, preference theory and rational choice/human capital theories are in the terms of Tomaskovic-Devey (1993) ‘supply-side’ theories centring on only half of the choice relationship, where women offers their services and seek to meet the requirements for employment or promotion, but not the other half of the selection process. In other words, choosing does not mean getting, and this is what is generally underemphasized in choice paradigms. Though theories of patriarchy often are supplemented with a ‘supply-side’ notion of female identity formation, the bulk of its explanatory rests either in emphasizing demand side constraints, or factors neutralising (real) choice (such as the role of patriarchal images and ideologies play in female identity formation).

Turning to the gendered organisation literature, Britton (2000) finds three basic ways of viewing organisations as gendered. The first is in line with Acker’s (1990) initial formulation and maintains that an organisation is gendered in “that advantage and disadvantage, exploitation and control, action and emotion, meaning and identity are patterned through and in terms of distinction between male and female, masculine and feminine” (Acker quoted in Britton 2000:419). In other words, according to Acker, the main fissure in an organisation around which the most central material and symbolic resources and processes are divided is gender. This is an assertion of a strong relationship, not a loosely coupled relationship about what leads to the possession of resources and positions in organisations and distribution of roles and behaviours. Britton asserts that this position is posited axiomatically, making it impossible to investigate *whether or not and to what extent* it holds, but rather only *how* it holds. The close association between male domination and bureaucracy that is made by Acker (1990) runs counter to the empirical findings of subsequent research on the beneficial effects of standardisation and bureaucratic routines in arresting arbitrary discriminatory practices (Reskin, McBrier and Kmec 1999. The second view is more descriptive and merely “argue(s) that organizations or occupations are gendered to the extent that they are male or female dominated” (Britton 2000:420) and interest is focused on the historical processes of how this circumstance came about. The principal difficulty with this position according to Britton is that it conflates sex with gender.[6] The third perspective holds that “occupations or organizations are gendered in that they are symbolically and ideologically described and conceived in terms of a discourse that draws on hegemonically defined masculinities and femininities” (Britton 2000:420). The main criticism Britton offers of this position is that the step from macro or culturally based stereotypes of occupations (this perspective focuses rarely on gendered *organisations* per se) down to the way occupations and tasks are defined and played out neglects the extent to which reinterpreting and change and variation play, arguing that “While I do not necessarily agree that occupations and organizations are infinitely malleable interpretive resources,

[6] In our study we came across formulations like ”It’s a male dominated branch, but its not an “inherently” masculine occupation – it deals with technology, but the technology is neutral, and the setting is “female friendly” office based and cerebral.” To “churn out code” 16 hours a day or be more interested in real-time projects was identified as being more “male,” but these were seen as extreme cases pertaining to a small group of men (for a similar example, see Håpnes and Sörensen 1995. The question remains what bearing these extreme cases have in regulating what “normal” men and women do in the branch. This issue will be dealt with further below.

failing to take a bottom up view of the process of occupational and organizational gendering can cause us to overlook possible sources of resistance to the cultural and organizational imperatives for men to "do dominance" and for women to "do subordination" (Britton 2000:429).

Another central issue in the gendered organisations debate revolves around the impact of formal versus informal structures on inequality. Here I will draw on two examples, one from our own study (one of the few instances of outright sexist discrimination that was reported to us) and an example drawn from Tierney's (1995) study of an Irish software division. One prevalent assumption is that as managerial power is diminished by the flattening of organisations and the increased use of management by targets and objectives and leaving the employees to work out the details of the production process among themselves or under the loose supervision of a project leader, women will be less subject to the power and perceptions of (primarily male) managers and supervisors. In other words, women will be shielded from paternalist and arbitrary discriminatory (conscious or unconscious) power wielded by male managers. This is largely the explanation that Kvande and Rasmussen (1994) give female engineers having better career opportunities in dynamic network types of organisations than rigid, formal hierarchies.

The degree to which flat organising diminishes managerial power does not hold true in practice to the extent that it is supposed in theory. In our study, while most project leaders and supervisors do delegate operational decisions to the team members they supervise, these project leaders are intimately involved in decisive career development evaluations, like performance appraisals, wage setting and promotions. In one outright complaint about sex discrimination that surfaced in out fieldwork, a young, relatively recently hired female programmer felt that her male project leader undervalued her work and contributions merely because she is a woman. The project leader's opinion weighed heavily in the employees next wage negotiation round, resulting in the employee not receiving the increase she felt entitled to. The "conflict" was resolved by moving the woman to work under a different project leader, but her wage level was unchanged. At this early stage in her career and aware of the fact that wage increases are based on percentage increases, receiving lower increases at this point of her career will affect her for at least the duration of her employment at this particular company. This instance displays a number of important issues. The first is the continued relevance of managerial power with regard to career development factors even in knowledge intensive flat organisations. The second has to do with the reluctance, even in a firm that was generally seen to take gender issues and female equality very seriously, to override the evaluation and opinions of a senior level manager, the project leader. The third issue has to do with the way in which the issue of sex discrimination was dealt with. The matter was acknowledged in interviews both with the woman involved and the CEO, who brought up the matter in relation to a very general question about gender inequalities in the branch in general. The CEO saw it as a personality matter on the one hand, but also a matter of managerial privilege, assessment and procedure. Therefore, the matter was resolved via relocation and not a further wage increase.

Tierney (1995) finds a different consequence of informality that operates without volitional sexism. The unit that Tierney studied had a culture oriented towards "maximizing informality," (Tierney 1995: 194-195) which was conducive to the career advancement of a strong social network that she calls the 'lads.' This group comprised exclusively young and single (or, at least, childless) men who share common interests (football) and socialise both at work and outside of work (playing poker and drinking at the pub). Tierney notes that the senior management officials are frequently former 'lads' themselves and that strategic work-related information finds its way to and circulates among the lads. They become privy to information that is of central importance to pay (bonuses) and career prospects that is not explicitly or widely publicised (Tierney 1995:202). Tierney reports that negotiation skills are also very important skills in such a context of informality, and that the lads have a number of advantages here – they know what the upper echelon are looking for (access to information from above), they can talk to each other and exchange tips and strategies (being "groomed on good tactics" by other 'lads' – Tierney 1995:203). Due to their domestic statuses they can also put in the hours, which are tallied for costing purposes and are one of the few quantifiable measures for negotiating bonuses, pay rises and promotions. One thing is hearing about behaviours that are deemed by

management as valuable and worth rewarding. Another is being in a social situation to be able to act on them – i.e. being able to put in hours, being able to learn from colleagues the skills that are valued.

Importantly Tierney's example also shows that gender is not a strict male/female category or dichotomy, but rather a set of conditions that tend to run along the division between men and women. Not all men in the division were included among the 'lads,' but significantly, no women were found in this clique. Both male and female outsiders were interacted with, but admission into the group depended on sharing interests (football, poker and drinking), being able to give the group one's time and engagement, and sharing the group's attitude – assertiveness, ambition and tactical thinking; and behavioural style. Both males and females were precluded from membership, but the combination of interests and requirements for admission to the clique made it less likely that a woman would wish to and be admitted into the group, and thereby gain access to the extremely valuable career resources that the lads had access to and exploited to their advantage. This example of shows how varieties of formal structure makes certain resources more or less important in an organisational context, and how informal resources are differentially made available and acquired by individuals and groups in organisations, in this case with very heavy gender overtones/determinants. As no formal discrimination occurs either on part of the clique of 'lads' nor the company, nor is gender a manifest aspect of the differentiation criteria, no *one*, either individual or corporate actor, can be held responsible for the advantaging and disadvantaging outcomes that arise from the set of circumstances. And the *operation of such a process* is probably not recognised or visible to members of the organisation, possibly only the outcomes, which may be explained in terms of cronyism or that the organisation's young "ambitious elite" hang together and "the lads 'just naturally' progress higher and faster" (Tierney 1995:208).

Gender and Technology

In this section I take up the theoretical debates around the question of whether and if so how technology is gendered, then move on to look at some of the empirical research on differences between how men and women as groups see, relate to and use technology before turning to provisional findings from our study relevant to this topic.

A basic issue in the gender and technology debate centres on the question of whether, and if so, how technologies themselves are gendered (see Karpf 1987; Berg and Lie 1992), versus the position that sees technology as masculine culture. This is a further breaking down of the question of just how technology and masculinity go together. The gendered technology position posits that gender is inscribed in the artefact, that artefacts are produced by men for men's interests and indelibly bear these imprints. This position is most frequently associated with 'eco-feminism,' but not exclusively. The technology as masculine culture defines technologies in a wider sense than the mere hardware (and software) and techniques strictly used to create and operate hardware and software, but the knowledges, purposes, values and customs that surround the technologies and their operation. In this sense one is looking at the wider social setting around the technologies, and not focusing on what is masculine or feminine about the microchip or a Linux versus a Microsoft platform. Håpnes and Sörensen (1995) also make the case that it is not possible to decisively discern what it is about computer technology that would make it masculine or feminine. Grint and Woolgar (1995) argue that both the gendered technology and technology as masculine culture perspectives are shot through with problematic essentialist assumptions and put forward a third position which they call "constitutive post-essentialism." The term constitutive refers to the idea that technologies are not physically shaped, constructed and created, but rather they *are* physical *and* discursive, the two inextricably fused, and not separable. This position sees technology as,

> neither neutral nor political in and of itself; that what it appears to be lies in our interpretive engagement with it. To ask whether, for example, an artefact is (that is physically embodies the properties of) male or female or neutral is to miss the point; not only are these properties themselves socially constructed and therefore flexible, but the

> important question is how certain artefacts come to be *interpreted* (and this may well be disputed) as neutral, male or female (Grint and Woolgar 1995:54)

In other words, it's what lies in the interpretation, not the technology itself that is crucial. A basic question arising from this is how local these interpretations are or can be; that is to say, can a technology and the occupations associated with it be interpreted as male or female on an organisational basis, or must it be on a national cultural basis? Evidence can be found for believing that it can exist at both levels, as well as one level being in contradiction with the other. The research on the recasting or renegotiation of gendered ascriptions at the local, organisational level is well documented (Fletcher 1998; Milkman 1987), though not as replete as the literature documenting acquiescence to and reproduction of dominant patterns (Gherardi and Poggio 2002; Epstein 1992).

On the national cultural level in the IT realm, evidence that gender coding is in the social denomination of jobs and tasks rather than in the technology itself can be drawn from the examples of Malaysia and South Africa, where programming and other IT based functions have classically been gender-coded as *female* tasks and women's work (Lyngaard 2002 for Malaysia, interview material from our project for South Africa). What probably accounts for the ascription of computer-related activities with women have to do with perceptions of the social contexts of associated with performing these tasks and the period in the transformation of the national gender regime (Shaver 2002; Walby 1997) at the time that these employment opportunities were opened up. In the case of South Africa, information technology was associated with being a civil, commercial technology carried out in an office setting and not associated with management. As such, it had the trappings of secretarial work that was already gender-coded as female work. Interestingly, despite this development occurring during the apartheid era, IT work traversed racial lines; white, coloured, Asian and to a lesser extent indigenous women all were trained and employed to carry out IT tasks. It was only with the rise of the IT boom in the North that men began to move into this female dominated sector and attempt to redefine it a "masculine." In Malaysia, women predominate not just among the computer science students at the University of Malaysia in Kuala Lumpur, but also among the staff and academic leadership positions. The office based nature of IT work is offered as one explanation of why it has been gender-coded as feminine in Malaysia, as well as the confluence of the relative late introduction of information technology with girls' and women's achievements in the educational system (Lynggard 2002:9). Despite the predominance of women in the IT sector in Malaysia it enjoys both high social status and material rewards, going against much of the Western based literature about the almost axiomatic lower or degradation of status and material rewards for female dominated jobs (for an IT relevant review see Wright and Jacobs 1994).

In the North and West however, the association of computer, communication and information technologies with the natural and technical sciences, with long histories of male dominance and "masculine" images has created another social and cultural gender-coding. However, we hear in our interviews arguments that are similar to those that seem to be guiding in South Africa and Malaysia when thinking about gender capabilities and appropriateness and *work* and the work setting. Office based engineering was frequently portrayed as entirely gender-neutral or female-friendly in contrast to other forms of engineering such as mechanical engineering and construction. What occurs here is a shift in orientation away from the associations between IT work and technology to a focus on the work setting. The image here is the sedentary office. When other aspects of IT work, such as consulting are brought in, necessitating travel and moving through multiple external environments, then such work is seen as less appropriate, or women are to be shielded from tasks involving such exertions. One point of consternation, especially in one of our Swedish companies is that this shielding goes on without the women even being asked if they want such tasks are not. What becomes apparent here is the continuous hold of the association of women with the domestic sphere. On the one hand, women are not to be removed too far from the home, where their primary responsibilities are still expected to reside and therefore are to be sheltered from travel, irregular and overbearing working hours, and access to both work and home is stressed (thus the tremendous emphasis on flexibility and tele/distance-working). On the other, if the office is like the home, sheltered, tidy and not requiring great physical exertion (the myth of non-physically demanding housework) – then the office is also an

appropriate place for women. This became especially apparent in our interviews in Ireland where the office was continuously contrasted with the factory or workshop. In other words, if *technology* per se is decoupled or sublimated in the equation, as in *OFFICE-BASED engineering*, then the female-friendliness of such employment is highlighted. The office is a distinct social context where "female" skills such as communication are at least rhetorically elevated. But what happens to the gender-coding depends on what aspect of the job is emphasised and what aspects of the educational and socialisation processes ante ceding the attainment of employment are viewed. Again, we are back to highly complex and multiple processes. And this is why from one perspective the low numbers of women in the IT sector appears paradoxical to many in the field – it appears to be ideal work for women in their current and stereotypical social circumstances. The lack of perceived physical barriers also plays into the discourses about choice of occupation. As no physical or social barriers are seen (by male and female employees and managers) to women's employment in the sector (no heavy lifting, its not dirty, or outdoors or a macho environment), this leads most people to the conclusion that it must be a matter of women *not choosing* it because they are not interested in technology or the perceived nerdy environment. At this point, any suggestion of policies to promote female employment in this sector appears artificial, forced and ill-conceived. However, the world that is apparent to those already in the sector is not apparent to those outside of the sector, so the issue becomes one of not being able to choose what one is not aware of or shrouded in stereotypical images. The finding that women enter IT professions to a far greater extent from the front end of computers rather than the back end of computers discussed above makes this point even clearer.

Contemporary perspectives/theories of discrimination

In the following section I want to focus on the work of two scholars, Barbara Reskin and Cecilia Ridgeway who move away from what I call the motivational paradigm most closely associated with the theory of patriarchy. Cecilia Ridgeway (1997), from a symbolic interactionist/ ethnomethodological perspective, queries why and how, despite occupational and socio-economic change, gender inequality gets reproduced in new arrangements. Though the questions Ridgeway deals with are far from new, her elucidation of the processes and mechanisms that she uses in her explanations are nuanced and situational, allowing for both explanations of persistence and change.

The lynchpin in Ridgeway's work is interaction. Initial interaction begins with the process of situating self and other by recourse to basic manifest classificatory categories, of which sex is one of the most obvious. Ridgeway calls these basic prior-to-interaction categorizations cultural "superschemas" that define "a few fundamental categories that can be applied to make sense of any person" (Ridgeway 1997:220). With more interaction "more and more crosscutting classifications are introduced, yielding increasingly complex and nuanced situated identities for self and other" (p.220).

This basic construction allows for both sex and gender's continuous presence and the possibility for it becoming more marginal, as interaction between actors increase. There are however recurrent situations, initial meetings like employment interviews, where sex and gender are almost always in the foreground. This situation is possibly moderated if a greater number of other professional and identity characteristics of the applicant are known and displayed in the interview situation. One of the alluring points of Ridgeway's work is that it is situationally variable, that is to say, it does not posit single mindsets or variables to be active or in force generally, but rather, again, *available* in the interaction situation. The general prevalence of interaction between men and women in society makes sex and gender schemas both of tremendous importance in guiding many of our day-to-day interactions, but also exposes these schemas to potential revision and modification. As Ridgeway & Smith-Lovin (1999:191) write, "The high rate of contact between men and women raises important questions about how interaction creates experiences that confirm, or potentially could undermine, the beliefs about gender difference and inequality that underlie the gender system."

In Ridgeway's Presidential Address to the Pacific Sociological Association (2000:2) the use of schema theory is even more explicit, stating with direct reference to Sewell (1992) and Giddens (1984) that

cultural beliefs should be thought of as "socially constructed schemas or rules for organizing social relations." She sees the project for sociologist with regard to studying difference codes is how they shape social relations, but also how social relations initiate, maintain or modify social difference codes. Making the case for studying interaction's impact on difference codes, Ridgeway states, "Interaction is hardly the only social force behind social difference codes, but it is a persistent and even insidious one" (p.5). All this may not seem so novel. We see echoes of schema theory even in West and Zimmerman's classic text from 1987, "Doing Gender:"

> doing gender merely involves making use of discrete well-defined bundles of behavior that can simply be plugged into interactional situations to produce recognizable enactments of masculinity and femininity (West & Zimmerman 1991:22)

What Ridgeway does though is break with traditional role theory's emphasis on performance of "culturally" learned or socialized roles, and emphasizes the creative and transformative possibilities associated with *transposition* through interaction. As we recall, transposition or transposability of schemas is one of the Sewell's central stipulations. However, with Ridgeway's emphasis on *interaction*, transposal is always negotiated between the two actors. Transposal is not always progressive in its outcomes. According to Ridgeway, transposal, via interaction is possibly the primary cause of how gender inequalities are transferred and replicated in new occupational settings: "interactional gender mechanisms can operate as an 'invisible hand' that rewrites gender inequality into new socio-economic arrangements as they replace the prior socioeconomic bases for gender hierarchy" (Ridgeway 1997:218).

In her interactional theory, Ridgeway highlights the importance of agency and the role of situational cues, focusing on how difference codes and status beliefs are enacted, and how people are told how to act and how these differences are reinforced and spread or replicated through interaction.

Ridgeway also gives us a better point of departure to study networks. The main problem with much of the pure network literature is that it is overly "structural" and one-dimensional in that it looks at networks as resources as pure or non-culturally mediated phenomena, that is to say the acceptance of resources is unproblematic. What the cultural literature makes us sensitive to is the "package" within which claims are made and *judged* or *assessed* are not so unproblematic as the basic treatment in network or social capital literature presents it. Here Ridgeway's work on interaction is central as networks are fora of interaction (both within and between networks), and helps in explaining the central question that more structural approaches to networks fail to address: Why and how homophilous networks cannot be infiltrated and transcended.[7]

In "The Proximate Causes of Employment Discrimination," Reskin (2000b) argues contra conflict theory that the most important causes of employment inequality are not attributable to intentional, interest motivated discrimination, but rather "proximate causes." That is to say causes one step removed from action. These "exogenous causes" of employment discrimination are directly attributable to social cognition processes, "normal cognitive processes (the subject of social cognition theory) that occur regardless of individuals' motives" (Reskin 2000b:320). Building largely on the cognitive psychology of Susan Fiske (1998), Reskin argues that many of the decisions and thoughts which guide discrete actions that have cumulative consequences on complex actions, like making hiring and promotion decisions can/are to a great extent, automatic or a function of the basic ways in which human thought occurs. In other words, these actions are cognitive, rather than motivational or volitional (Reskin 2000b). Making a distinction between automatic and deliberative (motivated) cognition along the lines of DiMaggio (1997 see also 1988), Reskin accords primacy to social cognition explanations of discrimination. Parallel to what DiMaggio and Ridgeway speak of as *cues* for evoking various schemas, Reskin speaks of "priming."

[7] Another central issue is that while networks act as channels of privilege or "opportunity dead-ends," as both Ridgeway and Tilly (1998) make clear, it is primarily the interaction *between*, not within networks that leads to the greatest relationships of difference, inequality and exploitation.

The same interests and concerns arise with Reskin as with most of the other theories I have reviewed above. What are local understandings and what are brought in from the broader environment? In other words, what are our *default categories* and *schemas* that automatic cognition draws upon. The subsequent question is how these default schemata got there, what holds them in place, and ultimately what might dislodge them. Here Ridgeway's interactional explanations become relevant. Social cognition theory helps us understand to some extent the mechanisms by which discrimination and bias are brought into a given employment setting. The extent to which such "automatic" processes are allowed to proceed unarrested or are subject to reflexive processes may influence the degree to which discrimination accounts for inequality. As noted by Baron & Pfeffer (1994), organizational arrangements can activate or suppress social psychological and cognitive processes. According to Reskin, if and how we seek to prime alternative schemata and correct automatic cognitive biases plays the primary role in correcting discriminatory bias. This observation is in line with empirical findings that, if properly constructed, bureaucratic procedures that reduce the role of subjective or collegial factors in the assessments of particular individuals in personnel decision making do increase the chances of individuals from minority groups being hired or promoted (Bielby & Bielby 1992; Cook & Waters 1998; Reskin & McBrier 2000, Reskin, McBrier and Kmec 1999). Again, at first impression this looks like the case of a pure "structural" factor leading to the reduction of inequality. But on closer observation, what we see are procedures that check automatically utilizing default cultural schemata and categories, as well as of course mitigating individual arbitrariness or bias (which may be motivational or merely cognitive again). In other words, such procedures break processes that allow "cultural" biases or homophilous tendencies to operate, to some extent filtering out the operation of culturally informed or derived bias, and going from the general or abstract to the particular.

What advantages does this cognitively oriented approach to discrimination afford us? The theories that I have reviewed above lead to three basic advances. The first is a greater capacity to not just incorporate, but focus on agency both at the individual and collective level in analyzing the causes of sex inequality in work, and in the IT sector, which is the focus of this project. On both a theoretical and activistic note, moving agency forward in our approach increases our sensitivity to detect, and thus also promote promote change. While still struggling with the old cultural paradigm, the importance of attention to agency to the emancipatory project can be read from the following passage by Britton:

> an overemphasis on the cultural construction of an occupation can lead us to minimize the importance of the meaning given to their work by individual actors. While I do not necessarily agree that occupations and organizations are infinitely malleable interpretive resources …, failing to take a bottom-up view of the process of occupational and organization gendering can cause us to overlook the possible sources of resistance to the cultural and organizational imperatives for men to "do dominance" and for women to "do subordination" (Britton 2000:429).

Similar sentiments are in a more theoretical vein were voiced by Ridgeway in closing her 1999 Presidential address to the Pacific Sociological Association, "Social difference codes have life histories. Over long time frames, old codes can merge or fall into disuse and new ones can emerge" (Ridgeway 2000:9). Under certain conditions, the timeframes might not have to be so long.

The second advance is that a synthesis of these theories gives us solid micro-foundations for analyzing the extension, reproduction and operation of sex and gender inequality in relatively newly established firms in a relatively new economic sector. What we have here are theory and models built from bottom up, not top down. This does not however mean we lose macro, emergent properties, its just that we have solid foundations for the rest.

The third advance made by turn towards schema theory and social cognition deals a serious blow to the previously predominant conflict theory based motivational paradigm (Reskin 2000b). Swidler's (1986) decisive decimation of the central role of values and ends as the mediating link between culture

and action knocks the theoretical legs out from under a culturally based motivational perspective. According to Swidler its not values or ends that inform action, but rather commitment to cultural competences. Such commitments cannot reasonably be viewed as intentional and motivational. The delving into cognitive and psychological research that DiMaggio and Reskin have done yields more plausible and powerful mechanisms for the creation, expression and implementation of bias that results in discrimination, without recourse to motivational grounds. Abandoning the motivational paradigm allows us to no longer be plagued by the Achilles heel of the motivational paradigm – trying to explain the origins and mechanisms of collective group (often male) interest pursuit, even in the face of strong countervailing rationalities.

A close reading of Ridgeway shows her moving away from the motivational paradigm in more than a theoretical fashion, "the repeated background activation of gender status over many workplace interactions, biasing behavior in subtle or more substantial degrees, produces *the effect* of men acting in their gender interest, even when many men feel no special loyalty to their sex." (Ridgeway 1997:227). What Ridgeway states here is that the accomplishment of gender interests is an accomplished effect *rather than a cause*. Most of the processes that Ridgeway gives to account for the preservation of gender inequality, such as missing or discounting information that would undermine gender stereotypes, attributing competence to groups already deemed competent and finding fault in groups deemed less competent, can be seen as treating schemata in the same ways as DiMaggio (1997). In a later article Ridgeway (2000:6) concurs with Reskin, concluding that "hostile prejudice is not the most frequent form of evaluative bias in social difference codes.

Leaving the motivational paradigm frees us from seeking out intentionality and spurious interest pursuit and focuses our analytical attention once again on the varying availability of culturally available schemata and resources in localized contexts in organizations, the conscious and unconscious presence of "primers" or cues activating various schemata and calling forth automatic or deliberate cognition.

The innovations above also begin to bring academic explanations, especially those arguing that the primary causes of sex inequality are largely non-volitional, into line with the (self) understandings of those in the IT sector. While this is not of consequence in and of itself, it has both practical and academic consequences. On the practical side, moving beyond the motivational paradigm to address causes of discrimination makes it easier to open a less threatening dialogue with companies. Work on inequality and discrimination in private sector firms becomes much easier if the basic premise is not volitional discrimination of minority groups. If the primary causes of discrimination are, and can be portrayed as being based on subconscious cognitive processes, recriminations and finger-pointing is avoided. As argued above, it is probably both empirically more accurate in most cases and cooperation-engendering for bias and the resulting inequalities to be explained in non-volitional terms that are in accord with the collective and individual self-images of companies and their officials, yielding greater openness and collaboration towards research and corrective policy measures.

Conclusion

The purpose of this paper is to make some theoretical headway that can begin to help us understand and place our findings within the multiple literatures that touch on the issue of promoting sex equality in the IT sectors in Sweden and Ireland on the one hand, and package them in a policy and corrective-friendly manner on the other.

With regard to cues or primers that ascribe gendered differences to men and women one interesting observation can be made. We see very little evidence of gendered ascriptions directly related to technology. Where we frequently see gendered ascriptions is in areas more remote from professional specialization, i.e. those relating to what types of work environments are suitable for women, the constraining effects of women's and men's domestic commitments and the social ways women respective men carry out their work tasks. The conclusion I draw here is that internally, to those within

the sector, the form rather than the content of the profession is what is rife with gendered connotations. To people outside the sector, the opposite is true – it is the content rather than the form of work that is rife with gendered ascriptions, and to a large extent prevents people, especially women from seeing and being encouraged to see the profession in a balanced manner. The findings that men and women enter the sector to an extent from different directions, front-end or back-end, seems to support the conclusion that gaining insight into the form of the profession, accompanied by a greater confidence in technical competence provides the social bases for the acquisition of an "internal" perspective for women who are initially on the margins of the profession.

The discourses of difference present in the branch pose a dilemma. On the one hand, there are images and ascribed characteristics that make women actively sought after in the branch and open up a level of managerial opportunities for women. Women make workgroups work better, women more often have clients' view in mind, women develop less complicated solutions to problems, women ask questions and ask for help rather than waste time trying to solve problems on their own, women have better communication and people skills than men, etc. These are the reasons that some of the companies in our survey use pictures of women and men in their recruitment advertisements and websites, send women out meet prospective employees at job and student fairs, and even offer higher bonuses to employees who headhunt female recruits, and promote a disproportionate number of women into middle management project leader positions. But how does one, recalling Grint and Woolgar's words of pragmatism and skepticism quoted in footnote 5, strategically confirm these propositions or observations without sinking into an essentialist explanation that in some cases can trap women in culturally stereotyped packaged which they subsequently will have difficulty pushing out of to pursue directions or exhibit behaviours not in accord with this package? One potential solution is to show the possible social origins of these observed or prescribed characteristics.

Take the matter of the client's perspective. Our study has shown that a far greater proportion of women than men have entered the IT sector after work experiences in which they were users rather than producers of IT. Thus one explanation could well be that many women may have a client's perspective because they have been in the situation of using IT in the way the client's employees will use the technology. But is such a proposition verifiable, or even worth verifying? This example lies in the positive direction that the branch as a whole wants to move, that of being more client oriented to the extent of designing systems that clients want rather than the systems that designers want to design. Thus it might be uncontroversial, though false, to confirm. But we have seen examples of other gendered understandings of behaviours that tend to trap or punish women. The most blatant example of this is the rhetorical applauding of collective and open problem-solving, coupled with the backlash that this reinforces the impression of women as less technically talented and less capable of independent work. The ascription of better communication, relational and interpersonal skills to women may open up certain doors to some women, but it might also keep them locked behind these same doors, and close others.

This dilemma is not specific to this study or the issue of promoting the numeric representation of underrepresented groups in organisations and occupations. It is the opposite side of the coin in most of the 'diversity' discourse current in business studies and practice. The uneasy balance between promoting greater numeric representation through the identification (or ascription) of positive traits with an underrepresented group and the promotion of balance between 'complementary' groups on the one hand, and a strategy of promoting individual and group opportunities through arguing for 'sameness' or disputing any inherent individual or group differences is well known in feminist debates. Through the general diversity ideas that have been spread through the business community and the ways in which traits have been ascribed to women in the IT sector (quite interestingly the same general stereotypical traits are identified in Ireland and Sweden suggesting that the stereotypical images are linked to broader Western images of women), companies operating in this sector frequently see a strategic value and competitive advantage in attracting women to their companies. While the business community is less interested in the epistemological status of essentialist arguments, there might be practical dangers in promoting the numeric representation of women in the sector on such premises (as discussed above). However, on the other hand, the basic presence of women in the sector

has been seen to have a catalysing effect, drawing other women in and up through personal networks and making opportunities visible to other women through role model effects. And once in, one could be optimistic about the creativity and resilience of individual actors to negotiate, reinterpret and challenge cultural and structural barriers to advancement in directions of interest to them. Especially if there are more women engaged in the same activity across the sector. In part this optimism springs from the shift of focus from macro-social constraints to micro-social interaction opportunities to challenge stereotypes and cultural based images. In this paper we have seen empirical and theoretical arguments highlighting the space for micro-social negotiation and means for decreasing the importance of sex as a difference code. However, we have also seen research that proves the resilience of broad and widespread cultural images not just on assessing the other, but also on oneself.

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